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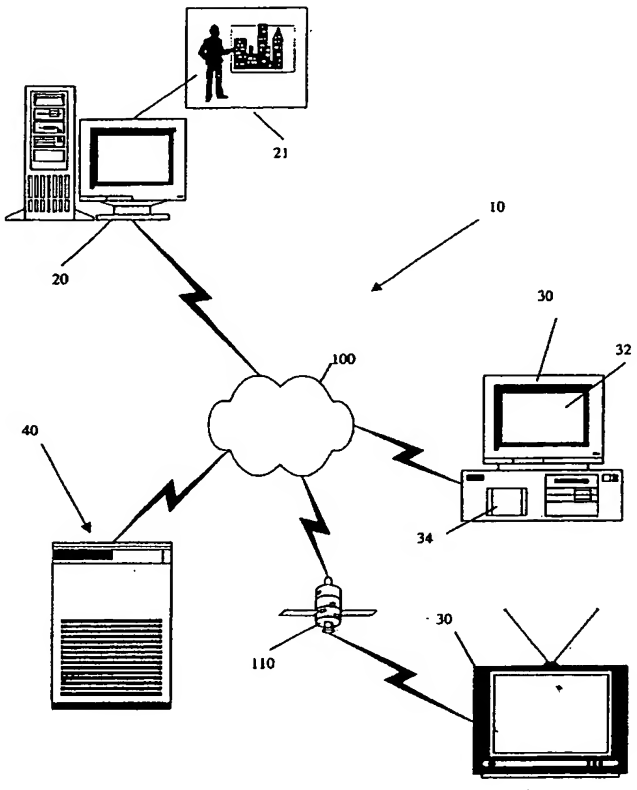
[Continued on next page]

(54) Title: METHOD AND APPARATUS OF INTERACTIVE BROADCASTING PLATFORM WITH HOST-TRIGGERED TIMING MECHANISM FOR VIDEO-CENTRIC PRESENTATION IN A BROADCAST ENVIRONMENT



(57) Abstract: A system for providing an interactive broadcasting platform with a host-triggered timing mechanism for video-centric presentation in a broadcast environment. The system (10) comprises a host broadcaster (20) and a receiver (30) operatively in communication with data network (100). The host comprises a source (22) of multimedia data (21); a host controlled trigger (24); and a source (26) of additional content, at least a portion of which is not delivered in real-time. The receiver (30) comprises multimedia file viewer (32); and a trigger receiver (34). Additional content data are created and provided to the receiver (30) such as over the data network (100) and stored at the receiver (30) before a triggering event is provided. Multimedia data (21) are then provided in real-time, such as over a data network (100). At a desired time, a triggering event may be provided at a host (20) in real-time and the receiver (30) will be allowed to present a predetermined portion of the additional content data in response to receipt of the triggering event. If is emphasized that this abstract is provided to comply with the rules requiring an abstract which will allow a searcher or other reader to quickly ascertain the subject matter of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope of meaning of the claims.

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METHOD AND APPARATUS OF INTERACTIVE BROADCASTING PLATFORM WITH HOST-TRIGGERED TIMING MECHANISM FOR VIDEO-CENTRIC PRESENTATION IN A BROADCAST ENVIRONMENT

RELATED APPLICATIONS

[0001] The present invention claims priority from United States Provisional Application No. 60/295,838 filed June 06, 2001.

BACKGROUND OF THE INVENTION

[0002] The invention relates to enhancement of multimedia presentations by use of additional content made available to a receiver of the multimedia presentation prior to a real time event, a portion of the additional content becoming available for viewing upon receipt of a triggering event.

[0003] Typically, real-time multimedia programming, e.g. television, is broadcast using either live-to-air broadcasting and/or cable head-end systems ("CATV"). Neither of these systems is typically interactive. Some additional hardware system, e.g. set top box systems, is usually required to provide a degree of user interactivity with the broadcaster, most typically in the form of viewing and possibly selecting from a menu of available viewing options. Such systems are typically viewer-centric with little information being presented to the view of data related to an event occurring in real-time. This is especially true in a non-deterministic broadcast environment, e.g. sports events or an instructional environment.

[0004] A need exists to allow a host or source of real time multimedia data, e.g. a sports broadcaster, newscaster, or instructor, to guide end user interaction with the real-time multimedia event. For example, an instructor may wish to direct one or more viewers to an illustrative

example during instruction but cannot know when, exactly – or even if – the need will arise to present that illustrative example.

[0005] Additionally, a need exists to allow the viewer to provide feedback in real-time to further the aims of the interactive session.

[0006] The present invention comprises a system for providing an interactive broadcasting platform with a host-triggered timing mechanism for video-centric presentation in a broadcast environment. Although used in an exemplary description below, the present invention is not limited to real-time broadcasts augmented with host-directed access to additional content but instead is limited by its claims.

[0007] The system may comprise a host broadcaster source of multimedia data and a receiver operatively in communication with data network. The host further comprises a host controlled trigger and a source of additional content, at least a portion of which is not delivered in real-time. The receiver comprises multimedia file viewer and a trigger receiver.

[0008] Additional content data are created and provided to the receiver such as over the data network and stored at the receiver before a triggering event is provided. For example, the instructor described above can prepare a plurality of illustrative examples before beginning the lecture and send them on to one or more targeted receivers, e.g. students.

[0009] Multimedia data are then provided in real-time, such as over a data network. At a desired time, a triggering event may be provided at the host in real-time and the user at the receiver will be allowed to view or otherwise access a predetermined portion of the additional content data in response to receipt of the triggering event.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] These and other features, aspects, and advantages of the present invention will become more fully apparent from the following description, appended claims, and accompanying drawings in which:

[0011] **Fig. 1** is a schematic of a system for providing an interactive broadcasting platform with a host-triggered timing mechanism for video-centric presentation in a broadcast environment; and

[0012] **Fig. 2** is a flowchart of a method of a preferred embodiment.

DETAILED DESCRIPTION OF AN EXEMPLARY EMBODIMENT

[0013] In general, throughout this description, if an item is described as implemented in software, it can equally well be implemented as hardware.

[0014] Referring now to **Fig. 1**, a schematic of a system for providing an interactive broadcasting platform with a host-triggered timing mechanism for video-centric presentation in a broadcast environment, system 10 comprises data network 100, host broadcaster 20, and receiver 30. Host broadcaster 20 and receiver 30 are connected to and communicate with each other through data network 100 which, in a preferred embodiment, is a public data network, e.g. the Internet. The public data network may further include wired networks and wireless networks such as cable, DSL, and satellite 110 as well as dial-up. Host broadcaster 20 may further provide data to receiver 30 through broadcast media such as the air, cable, and satellite media, and the like, or combinations thereof.

[0015] System 10 may be used to provide content for audiovisual transmission such as in real-time, e.g. in an educational system, a sports event, a news event, a training program, and infomercial event, an entertainment event, or the like, or combinations thereof.

[0016] Host broadcaster 20 comprises source 22 of multimedia data 21 which are deliverable to data network 100 in real time, host controlled trigger 24 (not shown in the figures), and source 26 of additional content, at least a portion of which is not delivered in real-time. The additional content data are related to the multimedia data and may include multimedia content, web page content, advertisements, and the like, or combinations thereof. Additionally, triggers may comprise an XML based trigger message comprising information describing the additional media content and an action command useful in dictating playback of the additional media content.

[0017] Receiver 30 further comprises multimedia file viewer 32 and trigger receiver 34, e.g. software executing at or in receiver 30. Receiver 30 may be a personal computer, an enabled television set, e.g. 32, a set-top box, a handheld device such as a personal digital receiver, and the like, or combinations thereof. As used herein, enabled television set 32 means a television set with integrated electronic intelligence to receive and respond to triggering events.

[0018] In a currently envisioned alternative embodiment, network operations center 40 may be present to provide a distribution service for the additional content as well as triggering events. In such embodiments, network operations center 40 is operatively connected to data network 100 and logically disposed intermediate host 20 and receiver 30.

[0019] **In the operation of an exemplary embodiment,** referring now to **Fig. 2**, a flowchart of an exemplary method, interactive broadcasting may be provided using system 10 by employing a host-triggered timing mechanism for video-centric presentation in a broadcast environment. System 10 may be used to provide a combination of live broadcasting in real time with a display of data related to the live broadcasting delivered to receiver 30 delivered to receiver 30 at an earlier time.

[0020] In a provisioning stage, additional content data may be created at step 200 where the additional content data relate to a real time event. The additional content data are then provided to receiver 30 at step 210 before providing a triggering event and stored at receiver 30, e.g. over data network 100, at step 220.

[0021] Multimedia data are then provided to receiver 30 in real-time at steps 230, 240, where the multimedia data may be provided over data network 100. As used herein, "multimedia data" provided to receiver 30 in real-time comprise television broadcasting and digital data casting in real-time fashion, e.g. off the air television broadcasting; real-time digital data casting over data network; and the like; or a combination thereof.

[0022] System 10 is host-centric, meaning that at a predetermined time, a triggering event is provided from host 20 in real-time at step 250, e.g. under human control in response to an event occurring in real-time, e.g. a broadcasting event. In a preferred embodiment, the additional content data are created and delivered to receiver 30 before providing the triggering event. Triggering may be by any of numerous equivalent methods as will be familiar to those of ordinary skill in the software arts, such as by using a computer to send a triggering data message under human control.

[0023] Receiver 30 receives the triggering event at step 260, e.g. a command message to playback the multimedia file, and presents a predetermined portion of the additional content data in response to receipt of the triggering event. Receiver 30 may, in response to the presented predetermined portion of the additional content data, accept and provide input from a user, e.g. a viewer at receiver 30, back to host 20. Additionally, receiver 30 may provide data such as statistical or parametric data, back to host 20. These data may be used to provide programming

parameterizations to host 20 to allow host 20 to alter the provision of a portion of the real time data, additional content, or both.

[0024] System 10 accordingly provides for interactivity between host 20 and receiver 30. Host 20 may therefore guide or steer interactions between host 20 and receiver 30. For example, a broadcaster may have provided additional content related to a roster of sports figures on a team prior to the broadcast of a sporting event, and then provide a triggering event to display selected information regarding a particular member of the sports team in response to something occurring in real time involving that particular member. The triggering event may be used to automatically navigate a secondary source, e.g. a web browser, to allow display of additional content via preloaded web pages. In currently contemplated embodiments, a viewer may be able to select one or more selectable items off of a "steered" web page, thus providing feedback to host 20, e.g. voting on the effectiveness of a particular strategy.

[0025] In an alternative embodiment, the real time event may be a lecture such as in an educational setting, and the pre-delivered additional content may comprise illustrative or demonstrative materials related to the subject of the lecture. The lecturer can then control the triggering event to invoke a particular set of illustrative or demonstrative materials in response to an interactive or spontaneous event, e.g. a question-and-answer session.

[0026] It will be understood that various changes in the details, materials, and arrangements of the parts which have been described and illustrated above in order to explain the nature of this invention may be made by those skilled in the art without departing from the principle and scope of the invention as recited in the following claims.

CLAIMS:

We claim:

1. A system (10) for providing an interactive broadcasting platform with a host-triggered timing mechanism for video-centric presentation in a broadcast environment, comprising:

   a. a data network (100);

   b. a host broadcaster (20) operatively in communication with the data network (100), comprising:

      i. a source (22) of multimedia data (21);

      ii. a host controlled trigger (24); and

      iii. a source (26) of additional content, at least a portion of which is not delivered in real-time; and

   c. a receiver (30) operatively in communication with the data network (100), the receiver (30) further comprising:

      i. a multimedia file viewer (32); and

      ii. a trigger receiver (34).

2. A system (10) according to claim 1, wherein:

   a. the data network (100) is a public data network.

3. A system (10) according to claim 1, wherein:

a. the additional content is related to the multimedia data (21); and

b. a predetermined portion the multimedia data (21) is delivered to the data network (100) from least one of (i) a source (22) of real-time multimedia data and (ii) from off the air broadcasting.

4. A system (10) according to claim 3, wherein:

a. the additional content is further related to at least one of (i) real-time multimedia and (ii) real-time broadcasting.

5. A system (10) according to claim 1, wherein:

a. the additional content comprises at least one of (i) multimedia content and (ii) web page content.

6. A system (10) according to claim 1, wherein:

a. the multimedia data (21) comprise at least one of (i) real-time broadcasting and (ii) digital data casting.

7. A system (10) according to claim 1, wherein:

a. the receiver (30) is at least one of a personal computer, an enabled television set, an enabled personal digital assistant, and a set-top box.

8. A method of providing interactive broadcasting with a host-triggered timing mechanism for video-centric presentation in a broadcast environment, comprising:

a. creating additional content data;

b. providing the additional content data to a receiver (30) before providing a triggering event;

c. storing the additional content data at the receiver (30);

d. providing multimedia data (21) in real-time;

e. receiving at least a portion of the multimedia data (21) in real-time at the receiver (30);

f. providing a triggering event at a host (20) in real-time; and

g. allowing the receiver (30) to present a predetermined portion of the additional content data in response to receipt of the triggering event.

9. A method according to claim 8 wherein:

a. a predetermined portion of the multimedia data (21) are provided over the data network (100).

10. A method according to claim 8 wherein:

a. the additional content data are provided to the receiver (30) using the data network (100).

11. A method according to claim 8 wherein:

a. the additional content data are created before providing the triggering event at the host (20) in real-time.

12. A method according to claim 8 wherein:

a. the triggering event is controlled by a human being in response to an event occurring in real-time.

13. A method according to claim 8 wherein:

a. the host (20) and receiver (30) comprise at least one of an educational system, a sports event, a news event, a training program, and infomercial event, and an entertainment event.

14. A method according to claim 8 further comprising:

a. generating feedback at the receiver (30);

b. transmitting a predetermined portion of the feedback upon receipt of a triggering message from a requesting host (20) asking for the predetermined portion of the feedback; and

c. accepting the feedback at the requesting host (20).

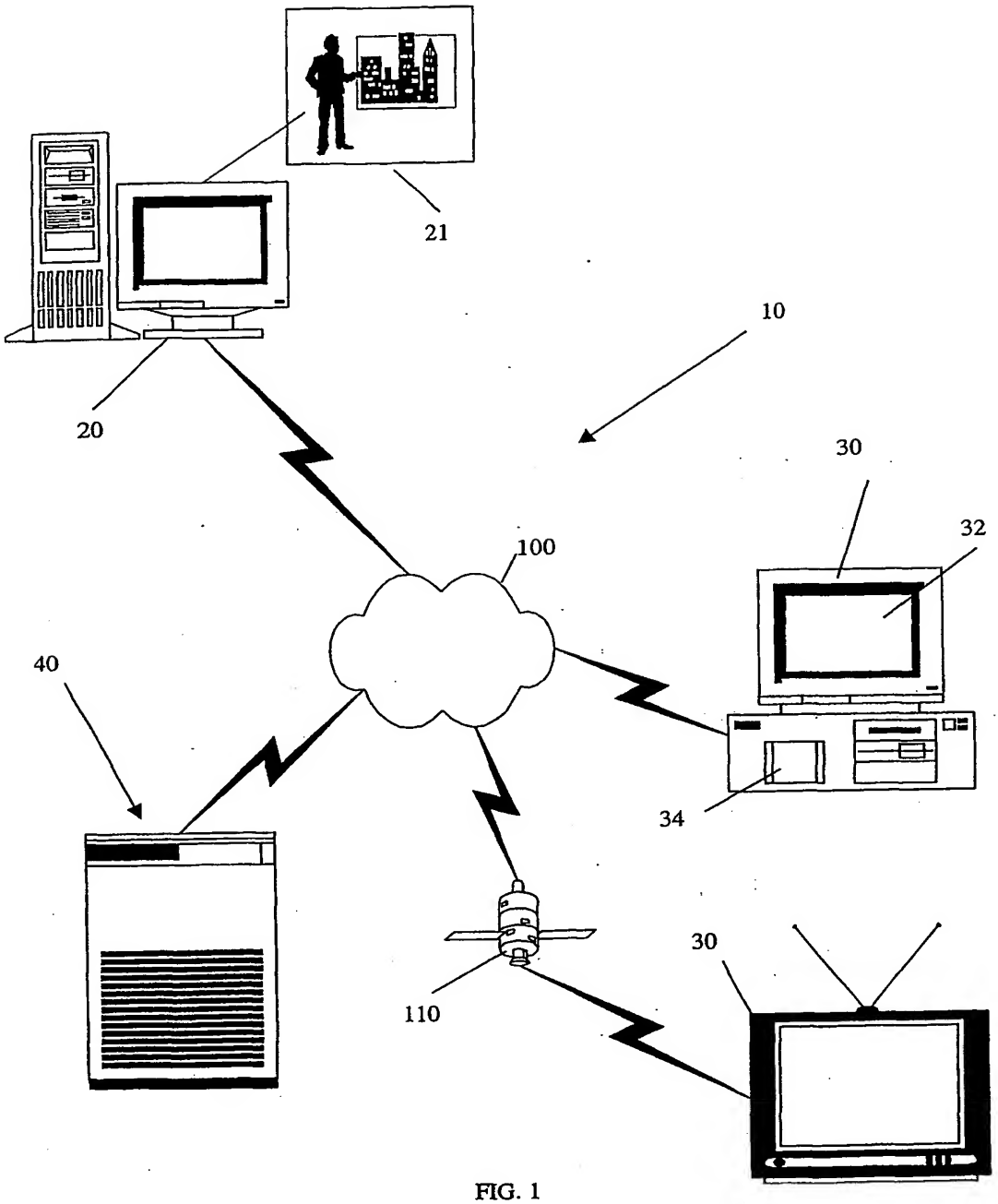

FIG. 1

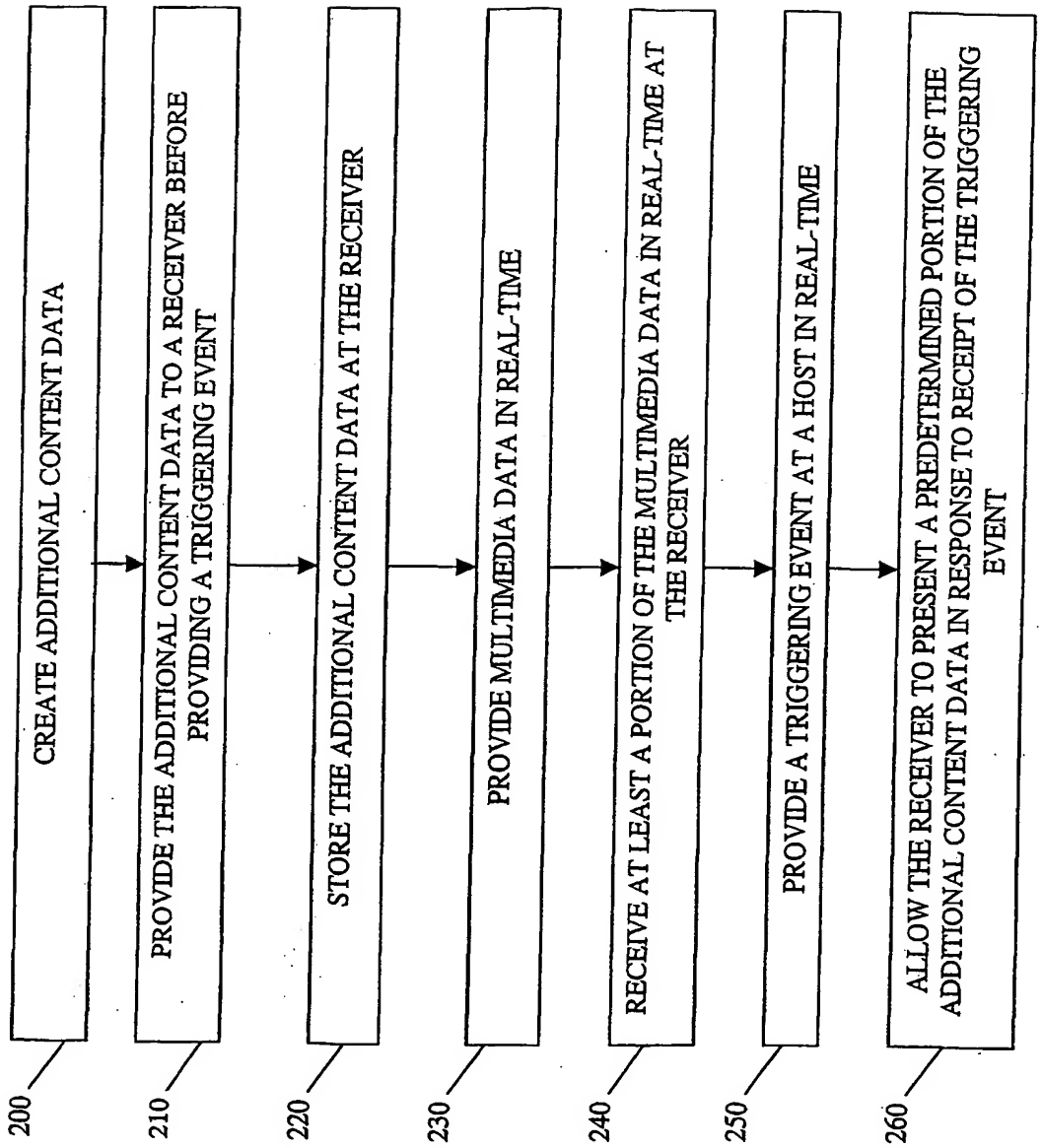

FIG. 2

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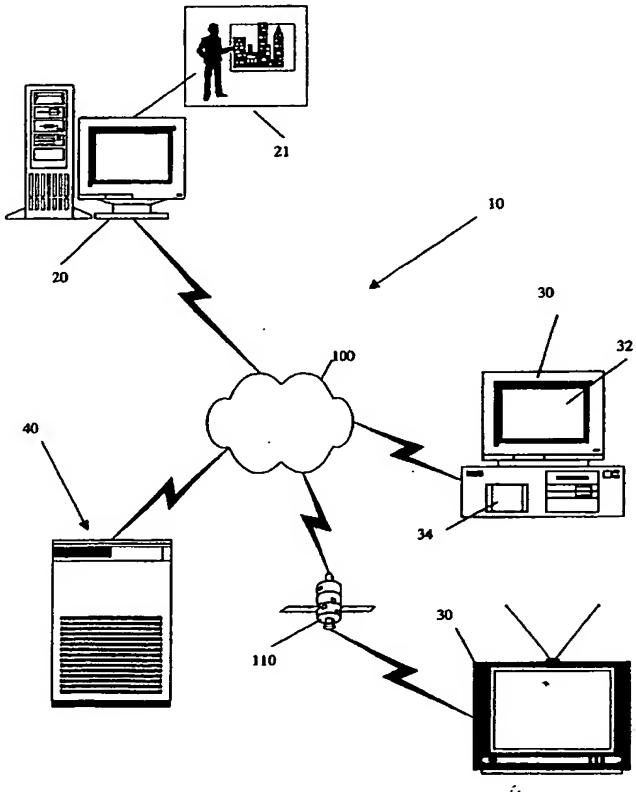

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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,852,435 (VIGNEAUX et al.) 22 December 1998, Abstract, column 2, lines 35-50, column 6, lines 42-55.	1-7
Y, P	US 2002/0023178 A1 (STRASNICK et al.) 21 February 2002, Abstract, column 2, lines 45-60.	1-7
Y, P	US 6,301,463 B1 (DAO et al.)09 October 2001, Abstract, column 3, lines 33-40, column 6, lines 41-55.	1-14
Y	US 5,973,684 (BROOKS et al.) 26 October 1999, Abstract, column 3, line 54 through column 4, line 25, column 8, lines 52-64 and column 10, lines 31-45.	8-14

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.

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